DOCUMENT RESUME

ED 125 867 SE 020 174

TITLE [Environmental Education Report - Pennsylvania Environmental Education Advisory Council.]
INSTITUTION Pennsylvania State Environmental Education Advisory Council, Harrisburg.
PUB DATE Jan 74
NOTE 30p.

EDRS PRICE MF-$0.83 HC-$2.06 Plus Postage.
DESCRIPTORS Curriculum Development; *Curriculum Evaluation; *Educational Assessment; Elementary Secondary Education; *Environmental Education; Program Descriptions; *Reports; Research; *State Surveys; Surveys
IDENTIFIERS *Pennsylvania; Research Reports

ABSTRACT

In 1973, the Pennsylvania Environmental Education Advisory Council was charged with surveying the current status of environmental education in the state and preparing recommendations for the development and subsequent implementation of a broad-based environmental education program plan for kindergarten through grade twelve (K-12). The Council was asked also to recommend teacher education programs needed to insure the success of the K-12 programs. The results of the Council's survey are printed in this report. Divided into a number of parts, the sections of the report include the necessity for environmental education programs, and recommendations. An appendix contains a definition of environmental education and a listing of school districts answering the survey. (Author/MA)

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SE 020 174

# PENNSYLVANIA
## ENVIRONMENTAL EDUCATION ADVISORY COUNCIL

- ☐ *What is going on?*
- ☐ *How should it be expanded or improved?*
- ☐ *What additional curricular resources are needed?*
- ☐ *What additional in and pre service education for teachers is needed?*
- ☐ *How can DER's human and physical resources be used in an environmental education program?*

January 1, 1974

Mr. John C. Pittenger
Secretary of Education
Dr. Maurice K. Goddard
Secretary of Environmental Resources
Harrisburg, Pa. 17105

Dear Mr. Pittenger and Dr. Goddard,

The Pennsylvania Environmental Education Advisory Council is pleased to transmit to you this Environmental Education Report. You are to be congratulated for establishing the Council and funding the seven-month effort.

The information and recommendations in this report provide an outline for action. In addition to the actions we have outlined for you, we have included recommendations that can be acted on by individual teachers, and/or educational institutions. In this way an all-out effort to provide the youth of the Commonwealth a quality environmental education program can proceed simultaneously at all levels of responsibility.

The members of the Council hope that you will find the recommendations worthy of your support and that their implementation will proceed rapidly.

Sincerely,

John Hug

John Hug,
Chairman



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## ACKNOWLEDGEMENTS

A great many people from all parts of Pennsylvania, some individually and others representing public and private organizations, assisted in various ways with the preparation of this report. The Council members wish to convey their sincere appreciation to everyone who answered our letters, provided information, and offered ideas and suggestions. The sixteen people who were named to the Council all contributed their time and energy without compensation.

Al Sexton and Barbara Swaczy carried out special responsibilities for the Council. Many others sat in on subcommittee sessions and performed other tasks for the Council.

Staff members of the Pennsylvania Department of Education and the Pennsylvania Department of Environmental Resources were helpful in providing information, materials, and suggestions as the Council moved through its deliberations.

Helen McLain from the Department of Education and Gene Eisenbise from the Department of Environmental Resources were the official liaisons and provided the Council with valuable information on the current and developing plans of these two State Departments.

Robert Schwille and Eleanor Bennett, environmental education advisors from the Bureau of Curriculum Services, assisted in the Council's work by participating in Council meetings and providing information for the Council's use.

Terry Pujia, the Council secretary, cheerfully provided the secretarial, clerical, and bookkeeping skills that were needed. Louise Shearer assisted in these tasks.

The Council extends thanks to Western Pennsylvania Conservancy who made it possible for Council Chairman, John Hug, to be released half-time during the seven months of the Council's existence.

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## PART I

## SCOPE OF THIS REPORT

A memorandum of agreement signed by the Secretaries of Education and Environmental Resources dated May 2, 1973, established the Pennsylvania Environmental Education Advisory Council.

The Council was charged with surveying the current status of environmental education in Pennsylvania and preparing recommendations for the development and subsequent implementation of a broad-based environmental education program plan for kindergarten through grade twelve (K-12). Specific attention was to be given to the utilization of the resources of all agencies. The Council was asked also to recommend teacher education programs that would be needed to insure the success of the K-12 programs. This K-12 and teacher education environmental education plan will be part of an Environmental Master Plan for the Commonwealth of Pennsylvania under development by the Department of Environmental Resources.

The number of students in grades K-12 constitute less than one-fourth of the Commonwealth population in any given year and will continue to decline. Yet an effective environmental education program could produce in only a few years a population of environmentally-sensitive citizens able to make individual and group decisions that will preserve and improve the quality of the environment.

The Council recognizes that a person's education, including the portion that deals with the environment, should not cease upon completion of high school. While this report is confined to the K-12 experience and related teacher education, the Council urgently recommends additional planning to fill the continuing needs of the adult community.

The Council wishes to call special attention to recommendations for teacher education programs set forth in Section VII. At first glance it might appear that these recommendations are simply a continuation of Section V directed to the Pennsylvania Department of Education. Programs for teacher preparation in pre-service and in-service situations, however, span the Department of Education, college- university programs, and local in-service programs. The recommendations in Section VII were given separate attention for reasons of emphasis and because of the varied institutions involved.

## PART II

## THE NECESSITY FOR ENVIRONMENTAL EDUCATION

## IN PENNSYLVANIA SCHOOLS

We have long tended to ignore the environmental consequences of our acts. Numerous social, economic, and political - as well as environmental - problems have resulted from this attitude.

The environmental consequences of an act, hidden in the web we call an ecosystem, are not easily perceived: the sewage flows downstream, the garbage is buried, the smoke blows away. However, as one environmentalist has observed, *"There is no away."*

The capacity of the environment to absorb abuse and misuse has reached a point where continued degradation will markedly affect the quality of life. Recognition of this concern prompted the Pennsylvania Legislature to enact the Pennsylvania Environmental Bill of Rights, guaranteeing a quality environment to each citizen of Pennsylvania.

> *"The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public, natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."**

These rights will not be upheld automatically. Each individual citizen must work to make sure that they are carried out. What is needed, therefore, is an informed citizenry, armed with the facts, skills and attitudes necessary to protect their rights. To help citizens do that, it is essential that environmental education in Pennsylvania schools be substantially strengthened.

The antecedents of environmental education are many: camping education, outdoor education, conservation education, nature study, natural resources education, resource use education - all of these, together with more recent urban studies programs, are now important parts of a broad definition that more and more educators are embracing:

> *"Environmental education is a learning process concerned with the interrelationships within and between the various components of the natural and man-made world producing growth in the individual and leading to responsible stewardship of the earth."***

This definition stresses wholeness rather than fragmentation, relatedness rather than separateness, involvement rather than detachment. An education program based upon this definition must serve at least four goals:

1. to increase people's awareness of their relationship to the total environment, and to deepen their understanding that humankind is part of a delicately balanced system, not its master;

2. to build people's awareness that the earth's finite resources are being exhausted by life-support needs, growing consumer demands, and an escalating world population;

3. to assist individuals in the examination of their behavior as determined by their purposes, beliefs, attitudes, and values;

4. to develop a citizen's ability and sense of responsibility to pursue positive individual and group action programs designed to improve the quality of life for humankind and the living world.

These four goals of environmental education, together with the rights and attendant responsibilities of the Pennsylvania Environmental Bill of Rights, stand as a foundation for environmental education programs. An educational program designed to satisfy these goals cannot be accomplished by the schools alone. The entire community must be involved: every person and every economic, religious, social, political, cultural, scientific, and educational group.

* Constitution of the Commonwealth of Pennsylvania, Section 27, Article 1.

** See Appendix A for amplification of this definition.

The school-community relationship must be a reciprocal one: community resources marshalled to aid school learning experiences must be met with school resources marshalled to aid in maintaining the quality of the community environment. Some of the programs described in Part III of these recommendations offer a glimpse of the potential of this relationship. No community can afford to waste the skills, knowledge, and other resources now locked up in the students, teachers, and facilities of its schools.

The evolution of environmental education parallels a similar and current trend in education generally: the effort to include in all educational programs a relevant experience-oriented inquiry into contemporary concerns. Environmental education programs exist on a continuum, from a traditional classroom approach to a truly interdisciplinary program. The energy crisis, a contemporary concern, dramatically illustrates crisis must be understood through the interrelated perspectives of history, economics, politics, science, technology, religion, resource supply, and the values held individually and collectively by those involved.

Too little attention has been given to environmental education in existing school curricula. This is due not only to an incomplete understanding of environmental education, but also to the difficulty of establishing an inter-disciplinary program in the existing school framework. Lack of adequate teacher education, single subject curriculum materials, inadequate financing, outdated teaching strategies, rigid time schedules, school isolation from community, subject matter requirements, inflexibility, and tradition-based inertia, are some of the factors that conspire to prevent good education from occurring.

The following recommendations of the Pennsylvania Environmental Education Advisory Council are consistent with the definitions and goals outlined above. The implementation of these recommendations will guarantee to each child at each grade level in the Commonwealth the opportunity to acquire the skills and facts, and to develop the values necessary to protect their environmental rights.

## PART III

## DESCRIPTIONS OF ENVIRONMENTAL EDUCATION PROGRAMS

Many talented and enthusiastic people, both educators and non-educators, have had a part in developing hundreds of environmental education activities or programs over the past years. Some of these activities and programs have been short, and low cost. Some have been long term projects with complex objectives and generous financing. Some have served their original purpose and so have ceased, while others have evolved as needs changed. Some were too far ahead of their time and could not survive. Some have found their niche and have continued relatively unchanged. Each has made a positive contribution to the present status of environmental education. Most of us could not develop new environmental education programs were it not for these antecedents - were it not for our observation or participation in these evolving innovations.

The Council received dozens of descriptions of environmental education activities and programs. Many of these descriptions were accompanied by a wide range of sample curriculum materials. Space does not permit the inclusion of each of these descriptions in this report. However, schools wishing to broaden their environmental education efforts can benefit from the many programs and projects that are currently being carried out by schools in the Commonwealth. Programs with similar characteristics were grouped into eight categories to avoid duplication in the descriptions. These general descriptions deal with characteristics common to most programs of a type rather than describing a particular project.

Many of the programs suggested in the next few pages can be initiated immediately; others could be initiated with some planning; while others, particularly the interdisciplinary courses, would require a special long term effort. A good environmental education program, however, would not necessarily include all eight types. The goals outlined in other sections of this report can be met through various combinations of program components.

Most schools, along with their communities, have the physical, human, and financial resources to develop a comprehensive environmental education program. If further help is needed, there are numerous private and governmental agencies and organizations which can provide assistance.

Appendix B, page 20, list 234 school districts who returned our questionnaire. People seeking more detailed information about environmental education programs may wish to contact these school districts or may contact the Senior Advisor for Environmental Education, Box 911, Harrisburg, Pennsylvania 17126.

### Type 1. Interdisciplinary Courses

A course is considered interdisciplinary when two or more discrete subject areas are integrated into a composite course of learning. Probably the most common would be some combination of a natural science discipline with one of the social science disciplines such as political science, economics, or history. Less common would be combinations where the central discipline would be art, music, English, or mathematics. More consistent with the goals of environmental education, however, would be to design an interdisciplinary course around one or more environmental themes, topics, or problems which will automatically require the knowledge and skills of many disciplines.

In a course unit on solid waste, for example, students would approach this environmental problem in the context of each subject area. The students might study the effects of dumps on water quality, junk as an art form, the political and legislative ramifications of solid waste disposal, and current life styles in relation to convenience packaging. In a course unit on land use, students might study watershed factors, the aesthetic appreciation of green belts, appropriate residential architecture, urban renewal and suburban slum formation, and the psychological problems associated with the rapid growth and subsequent decay of over-developed areas.

Environmentally oriented interdisciplinary courses function best when the learning activities are specifically correlated with each subject matter discipline. It is often desirable to accomplish this correlation by using a teacher team. The team teachers can bring the expertise of their separate disciplines to

plan and implement the learning activities. Interdisciplinary courses might also be conducted by an individual teacher who has experience in several subject areas. Either teacher teams or individual teachers can be assisted by non-educators who have special knowledge and/or skills pertinent to the topics under study.

One interdisciplinary course for twelfth graders used a three-period block of time. Students received three credits for the course; one credit each in science, social studies, and English. This arrangement may be used as an interim plan until even more flexible scheduling and credit systems become acceptable.

Type 2. Single Discipline Courses

In recent years environmental courses in a specific discipline, especially the sciences, have been initiated in some schools. These courses often use environmental problems as a basis. Such courses generally include learning activities which provide students with opportunities to properly define environmental problems, to analyze the problems, and to propose alternate solutions to the problems. Some environmental courses emphasize scientific principles and techniques, while other courses may have a balanced emphasis between cognitive and affective goals.

Type 3. Environmental Units or Mini-Courses

At various levels of the K-12 organizational structure, opportunities are available to establish environmental units of study in on-going curricula. Elementary teachers, for example, might plan and carry out a unit on energy as part of the pattern of coursework in their self-contained class. Similarly, secondary teachers might provide units of instruction in environmental education in their social studies, vocational, humanities, agriculture, language arts, and science courses. Sometimes a secondary unit may be offered as a mini-course and, therefore, takes on additional characteristics. By either name it is one of the best ways to introduce environmental education into the existing curriculum. In the following paragraphs the word 'unit' will be used to refer to both 'unit' and 'mini-course.'

Units are often teacher-constructed but are also commercially produced. Those available commercially are generally kits, games and simulations, or pamphlets with student and teacher materials.

Commercial kits are conveniently packaged and contain a variety of instructional media. They are built around specific content areas such as ecology, pollution, or population. Kits also contain a teacher guide and student materials.

Games and simulations range from simple board types, in the tradition of Monopoly, to complex computer based simulations. In the middle ground are many games centered around an outline of an environmental issue or problem and an accompanying role component which can be adapted to the classroom. Recently public utilities and industry have begun producing games and simulations and are making them available to schools.

Supplementary units with environmental themes which utilize teacher guides and student materials are plentiful both from commercial and non-commercial sources. The basis of these units varies from a series of activities to classroom projects to a structured series of lessons with specific ratings, instructional strategies, and evaluation components. These supplementary units are available both with a single focus and with an interdisciplinary focus.

Teacher-made units generally arise from the specific needs of a particular group of students and may not have universal applicability. Some, however, are well suited to various grade levels and various student characteristics. Teacher-made units are often geared to the existing supplies, equipment, and materials of the average classroom and can be implemented easily without additional cost to the teacher or school. Some schools have a supply of these environmental units which have been prepared by teachers.

The environmental education unit in the science classroom is generally centered around those measurable or technical aspects of the environment. Usually they are pollution centered and enable students to expand their laboratory skills both in and outside the classroom. Measuring, testing, and/or sampling water, air, noise, soil, thermal pollution, pesticides,

solid waste, energy, and the like, involves the students in firsthand experiences. More comprehensive units in science classes examine such problems and issues as: land use; resource use; physical and mental health; food production, supply, and distribution; and population.

In the social sciences the environmental unit is geared more toward human beings and how their attitudes, values, and beliefs affect the quality of life. Common issues in such courses are population, urban problems, planning, economic development, and environmental legislation. Recently a new emphasis on urban ecology is beginning to be felt in the social studies classroom, and with it a concern for architecture, housing, recreation, local government, and other aspects of the urban environment.

The environmental education unit is probably least developed in the humanities disciplines. Nonetheless, there are a number of programs which relate the study of the environment to the arts. The literature concerning the environment is not only growing but the writings of Emerson, Thoreau, Whitman, and others are being rediscovered and reinterpreted in the light of today's environmental awareness. The arts, as well, can be studied by viewing our natural and man-made environment through ecological eyes and ears.

In addition to these three discipline areas, environmental education units can also be taught in vocational-technical classrooms. Vocational agriculture, for example, can emphasize the environmental significance of soil conservation, food production, and animal populations. An environmentally oriented home economics teacher could teach a unit on bio-degradable products, recycling, or energy conservation.

A good environmental education unit, whether it is teacher-constructed or commercially produced, should: (1) include the use of a variety of instructional strategies, such as field trips, case studies, role playing, surveys and polls, problem solving; and (2) emphasize value clarification as well as environmental content.

Type 4. Environmental Community Action Emphasis

Successful community action activities require a school community relationship that is reciprocal. Students and teachers have skills, knowledge, and energy that can be valuable assets when the community is trying to resolve an environmental problem. Business, industry, government - in fact all segments of the community - have skills, knowledge, and energy that can be valuable assets when the student is striving for a meaningful education. This cooperation and sharing between school and community must be carefully nurtured until mutual trust is firmly established.

Cooperative school community projects have been carried on throughout the Commonwealth. Their variety is as broad as the State is wide and new kinds of projects are being devised as the educational needs of the school and the environmental needs of the school's community become clear.

One group of students adopted a city block near their school, in an effort to resolve some of the block's environmental problems. They renovated the outside of all abandoned houses and a bar. Residents and local companies assisted in the clean-up and repainting. Houses will be purchased by a local corporation for resale.

In another area students investigated a large dump site and determined that it was illegal. They reported the violation to the Pennsylvania Department of Environmental Resources who closed the dump. Students also prepared a report which they presented to the town council and caused a local no dumping ordinance to be passed. As an on-going project they are watchdogging the enforcement of the ordinance. Students shared their success through a local television program and have prompted other groups to undertake similar projects.

Recycling is an area where student interest and success run high. If students cooperate with their community, a recycling program can aid students in developing community leadership and decision making skills. One group of twelfth graders in an environmental problems class have spearheaded a district wide and community wide recycling program. This program involves reuse of paper within the school as well as community newspaper recycling. Students spoke to an assembly at each elementary and secondary school to introduce the program and to solicit support. A collection and reuse system has been established in all classrooms with students manning a redistribution and sorting center for the entire school building. Monthly newspaper recycling was introduced to the community through a house to house campaign, media promotion and a recycling hotline. Students maintained 23 sites at all school buildings, as well as local fire houses, gas stations, and stores. A home pick-up service was also available. Students realize that this type of recycling is not a permanent solution to the solid waste problem. They planned to use data from the project to encourage their city council to make recycling part of regular sanitation service. They have also lobbied for recycling legislation in the Pennsylvania legislature. The project fulfilled a portion of the community involvement objective for students in this environmental problems class.

The litter clean-up campaign has always been a popular school and youth group activity. Such a campaign can introduce students to recycling and can lead to the type of program described above. Students have cleaned roadsides, school yards, business and neighborhood sites and wooded areas. When students record the composition of this litter and release the information to the public they perform a valuable educational service. However, the community must remember that students are not the garbage men of the environmental movement.

Most communities don't have the data they need to make decisions about their local environment. How clean are the streams? What are the key environmental problems? Students with limited equipment can undertake periodic monitoring of air, water, and other resources. In one case over twenty schools in cooperation with a regional citizen group, have planned together to develop a qualitative/ quantitative environmental profile. Measuring environmental conditions on a local and regional level, students throughout northeastern Pennsylvania sample water quality at special sampling stations on the same day and time each month. Data from this and other short range monitoring projects are utilized by the citizen group, local governments, and the Pennsylvania Department of Environmental Resources. Students undertake this monitoring as an activity of their regular science or social studies class.

When these students inventory an area or monitor water quality, they become aware of community and neighborhood environmental problems. At the same time the students' knowledge increases and problem solving skills are sharpened.

Type 5. Environmental Awareness Emphasis

Frequently an environmental awareness program is thought of as one that takes place in the primary grades - a sort of introduction which preceeds later serious study about the environment at higher grade levels. Instead it should be thought of as an introduction to any unfamiliar environmental concept, no matter what the grade level. A kindergarten child may be helped to become aware of the cold feeling he gets on a cold windy day in January. Fourth graders may realize that street noise is interfering with their hearing a favorite story being read by the teacher. An eighth grade student may become aware of the difficulties involved in getting the city council to pass a no open burning ordinance. A twelfth grade student may suddenly become aware of the world population problem when he is introduced to the concept of exponential growth.

These kinds of awareness experiences along with the more familiar Earth Days, Arbor Days, bulletin boards, auditorium periods, and introductory filmstrips are only the beginning of a comprehensive environmental education program. What follows will determine whether students leaving high school will be environmentally literate citizens.

Type 6. Environmental Study Areas

Traditionally an environmental study area has been a school site, vacant lot or park in which students were introduced to nature study. In environmental education nature study is still valid and important, but an environmental study area may also be a shopping center, a solid waste transfer station, a governmental office, a sewage or water treatment plant, the emergency room of a hospital, or a welfare office. The

use of both natural and man-made environmental study areas provides an essential component for an environmental education program by offering to the student firsthand observation, discovery, and problem solving. Another important part in the use of environmental study areas involves receiving firsthand information from the employees in charge such as business managers, garbage haulers, judges, chemists, nurses, social workers, naturalists, or forest rangers.

Many man-made and natural environmental study areas are within easy walking distance of the school and do not require long and expensive bus trips. In cities, towns, and suburbs, the school neighborhood may be used for environmental studies and more distant sites may be reached by public transportation.

Type 7. Special Environmental Emphasis

Individual schools and teachers have for many years planned and carried out learning activities designed to help students understand their environment. Often these activities have been encouraged by a special interest group or a current crisis or necessity. For example, the President, the Governor, or a Mayor might proclaim car pool week, conservation week, bird day, mass transit week, soil stewardship week, paint-up fix-up month, or anti-noise week. Bulletin board, poster, photography, drawing, and theme contests can have environmental themes. An environmental careers day could serve to focus attention on the need for students to look ahead to environmentally oriented job possibilities. Dozens of such special environmental emphasis activities could be generated by teachers and students as one part of an overall environmental education program.

Each of these activities can help develop basic learning skills and at the same time accomplish the goals of an environmental education program. At any grade level these environmental emphasis activities help build awareness of the students' environment, bring them new knowledge and involve them in worthwhile school and community projects. The activity may require students to participate in planning sessions with teachers, administrators, or community leaders. It may mean a school or community wide publicity campaign.

Individual teachers can initiate such projects or groups of teachers at the secondary level can make them an interdisciplinary effort as part of regular classroom work. These projects could also be carried on by special interest clubs or individual students after regular school hours or during activity periods.

For some schools these activities may be a good beginning for a comprehensive environmental education program while other schools may use these projects as supplementary or culminating activities.

Type 8. General K-12 Programs

A general K-12 program in environmental education is one which starts at the primary level with simple environmental concepts and continues through the intermediate grades and secondary school years with increasing depth and complexity. The seven preceding descriptions are all possible components of such a program. It is not necessary that all these components be included at all grade levels nor is it necessary for all types to be in the program at the same time. It is more important that the program as a whole be comprehensive and continuous.

The need is great for environmental education programs which provide instruction for each student at every level of the K-12 structure of basic education and which provide the connecting links between subjects and from grade level to grade level. Individual schools and, more importantly, entire school systems should implement such a systematic approach to environmental education.

## PART IV

## RECOMMENDATIONS TO SCHOOLS

Many schools in Pennsylvania have made an effort to provide students with an environmentally oriented education. It is now time to redouble efforts to provide every kindergarten to twelfth grade student in every school the skills, knowledge ad attitudes necessary to safeguard their rights under the Environmental Bill of Rights and to function as a caring and participating citizen of the world.

School board members, superintendents, administrators, teachers, and interested citizens must look primarily to their own community resources to bring about a viable program. They should examine the school budget and reallocate funds within and between categories to ensure the initiation and/or expansion of environmental education activities. The Pennsylvania Department of Education and other state agencies can assist local efforts but the major responsibility must remain a local one.

The twelve recommendations in this section are designed to help schools move ahead with their own program which meets the particular needs of the students in that community.

Each school in the Commonwealth offering basic education should:

#1 Implement environmental education as an integral part of its curriculum for each child at each grade level to insure a continuity of learning experiences.

#2 Use the Pennsylvania Environmental Bill of Rights as one of the basic elements of all environmental programs.

#3 Identify the characteristics of an environmental education program that are applicable to the school's community. The characteristics should reflect the specific attitudes, behavior patterns and skills to be developed during primary, intermediate, and high school years.

Experiences included in such environmental education programs would fulfill the goals outlined in Part II and would:

...provide opportunities for students to investigate real environmental problems and participate in environmental education activities in both natural and man-made environments;

...assist students in personal values clarification;

...assist students in the development of conflict resolution skills needed for community environmental problem solving;

...allow students to examine the different facets of environmental issues and encourage them to make sound decisions based on available facts;

...foster community-school interaction and utilize the community for educational activities.

#4 Compile a regional environmental education inventory of existing facilities and persons to foster better utilization of community resources by school districts, teachers, and students.

An outline for a useful inventory might include:

A. Organizations, agencies, businesses, and industries
   - name of organization
   - officers
   - goals
   - activities
   - types of assistance available to schools
     - speakers
     - field trips
     - information
   - types of assistance wanted from schools

B. Advisors or consultants

   name, address, telephone number type of service available to schools

C. Man-made and natural environmental study areas

D. Regional environmental conditions

#5 Combine the information derived from the regional inventory and the information below into a *Teacher's Environmental Education Sourcebook:*

A. Basic philosophy of the environmental education program.

B. An outline of the goals for the K-12 environmental education curriculum.

C. Specific curricular guidelines with recommended environmental education activities for K-12.

D. Educational media inventory (description, source).

E. School Policies and Procedures to be considered when participating in various environmental education activities.

F. Guidelines for using the regional inventory.

#6 Build, acquire, develop, or otherwise make available environmental study areas and facilities and then plan for their efficient utilization by teachers, students, and community citizens. Examples of environmental study areas: special classrooms, school natural areas, government owned natural areas, neighborhood and community sites, other government owned facilities and sites.

#7 Plan environmental career education programs for elementary and secondary school students which should be composed of an orientation program for all students and appropriate vocational-technical programs as needed.

#8 Plan environmental education in-service education programs (see Recommendation # 48) for all school staff including:

school board members
administrative staff
teachers
paraprofessionals
other appropriate staff

#9 Build community awareness of school environmental education programs and coordinate those school programs with on-going and planned community environmental education programs.

#10 Designate one or more staff members as environmental education specialists or coordinators on a full or part-time basis to ensure continuing effort in the development of environmental education programs.

#11 Review its: (1) school building operations, (2) proposed building or remodeling plans, (3) educational purchasing practices, and (4) utility and maintenance purchasing practices to make each consistent with known environmental principles.

#12 Involve administrators, teachers, students, and citizens in assessing the environmental impact of proposed school board and community actions.

## PART V

## RECOMMENDATIONS TO THE

## PENNSYLVANIA DEPARTMENT OF EDUCATION

The Pennsylvania Department of Education (PDE) is responsible for providing quality education for all the people of Pennsylvania. PDE has designated environmental education as one of six curriculum priorities. The Council recommends that the following actions be taken to assist the schools of Pennsylvania in their effort to provide a comprehensive environmental education program for all their students.

## PART V-A

## IMPLEMENTING K-12 PROGRAMS

The Pennsylvania Department of Education should:

#13 Develop, keep current, and distribute to Intermediate Units and school districts environmental education program models that reflect the characteristics enumerated in Recommendation #3.

#14 Determine an effective way to collect, organize, and make available to school districts descriptions of on-going environmental education programs in Pennsylvania schools. The use of RISE, an information retrieval system, is one possibility.

#15 Create, keep current, and distribute to Intermediate Units and school districts a list of selected elementary and secondary environmental education curriculum materials. This list should describe the materials according to discipline emphasis, grade level, length, and instructional strategies and evaluate them against a predetermined set of criteria.

#16 Provide for each school district, guidelines and appropriate materials to implement Recommendation #2 which calls for the Environmental Bill of Rights to be one of the basic elements of all environmental education programs.

#17 Prepare and distribute to school districts model environmental career education programs designed to expand elementary and secondary school students' knowledge of the wide variety of job opportunities in this rapidly developing field.

#18 Assist school districts and/or Intermediate Units in compiling their *Regional Environmental Education Inventory* (see Recommendation #4). All appropriate agencies and existing information should be utilized in compiling the inventory.

#19 Assist school districts and/or Intermediate Units in preparing their *Teacher's Environmental Education Sourcebook* (see Recommendation #5).

#20 Cooperate with local school districts to finance the transportation of students for environmental education and/or community-based learning experiences.

#21 Recommend that the Pennsylvania Board of Education change the wording in Section 152, Chapter 7 of The State Board Regulations from 'conservation and outdoor education' to 'environmental education.'

#22 Require as implied by the revised State Board of Education Regulations that each school district develop environmental education programs including implementation plans as a part of their Long Range Plan.

#23 Require as implied by the revised State Board of Education Regulations that Intermediate Units assist local school districts in formulating these plans and in implementing K-12 environmental education programs.

#24 Encourage Intermediate Units or groups of Intermediate Units to engage environmental education coordinators or environmental education specialists to generate, promote and coordinate environmental education programs in local school districts.

#25 Encourage each Intermediate Unit to review its inventory of educational media and assist them in acquiring additional materials essential for the support of environmental education within their unit.

#26 Design appropriate in-service programs in environmental education for Intermediate Unit personnel in order that they can better assist local districts in this vital area.

#27 Include for each new group of participants in the Executive's Academy sessions on environmental education designed to assist these school administrators in planning and implementing complete environmental education programs in their schools.

#28 Design an evaluation plan whereby school district environmental education programs can be regularly assessed. Two mechanisms for this evaluation may be through the Long Range Plan or through the Bureau of Educational Quality Assessment.

## PART V-B

## IMPLEMENTING CHANGE IN PDE

In order to provide increased services to local educators as was previously recommended, the environmental education staff of PDE should be expanded; their status within the organization should be enhanced; and lines of communication among all PDE staff concerned with interdisciplinary studies should be strengthened. Existing personnel at PDE should be encouraged to strive for the establishment and implementation of instructional programs which are truly interdisciplinary in nature.

The Pennsylvania Department of Education should:

#29 Provide greater emphasis and responsibility in the coordination of interdisciplinary environmental education programs.

#30 Reinforce the continuing process of coordinating expertise in interdisciplinary studies among the staff of the various bureaus. Curriculum specialists should meet regularly, pool resources, and prepare learning activities and environmental education materials.

#31 Conduct a personnel needs assessment based upon the recommendations contained in this report and increase accordingly the number of personnel with expertise in environmental education.

#32 Intensify cooperation between the Office of Basic Education and the Office of Higher Education in the development and coordination of environmental education programs at both teacher education and basic instructional levels.

#33 Develop a comprehensive in-service education program for appropriate staff of the Department.

## PART V-C

## IMPLEMENTING COOPERATION WITH OTHER AGENCIES

The resources of many other departments and agencies are needed to provide a high quality environmentally oriented education for all young people in Pennsylvania. Lands, facilities, information, and personnel from these other agencies and departments should all be made available where appropriate.

The Pennsylvania Department of Education should:

#34 Ask federal and state agencies active or interested in environmental education to appoint a liaison person who can establish a meaningful dialogue with PDE about environmental education programs.

#35 Assist federal and state agencies through their liaison person to recognize the inherent educational value of their human, physical, and informational resources and to utilize those resources, including natural and man-made environmental study areas, in day and resident environmental education programs.

#36 Cooperate with other state agencies to plan, develop and implement environmental projects to be staffed by paid or volunteer high school students.

#37 Cooperate with such departments and agencies in developing high quality technical education programs for Civil Service and non-Civil Service employees at all levels of government.

#38 Encourage Civil Service Commissions at all government levels to make available to elementary, secondary, vocational-technical, and higher education institutions, environmentally oriented job descriptions and job classifications for use in their career education programs.

## PART VI

## RECOMMENDATIONS TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

The Department of Environmental Resources (DER) has demonstrated its desire to expand its role in providing effective environmental education programs for all the people of the Commonwealth. The Department realizes that an active, informed citizenry is essential to the conservation and maintenance of the environment. If the Commonwealth is to take its leadership role under the Environmental Bill of Rights, the role of DER in environmental education must be expanded. The Council, therefore, recommends that DER take the following steps to support a comprehensive program for every student in the schools of Pennsylvania.

The Pennsylvania Department of Environmental Resources should:

#39 Appoint a liaison person to work with PDE as outlined in Recommendation #34.

#40 Appoint regional environmental education specialists to coordinate environmental education within a given area of jurisdiction.

#41 Make readily available to educational institutions its human, physical and informational resources.

#42 Establish and operate a system of day and resident environmental education resource centers. These centers should be strategically located in State Forest or State Park lands and also in urban settings. Such centers can help assure each student in the Commonwealth an opportunity to discover various types of natural and man-made environments, and develop proper resource management attitudes. DER personnel should prepare resource guides to foster their use.

## PART VII

## RECOMMENDATIONS FOR IMPLEMENTING

## TEACHER EDUCATION PROGRAMS IN ENVIRONMENTAL EDUCATION

Pre-service and in-service teacher education programs in environmental education have had a limited effect on the creation of environmental education programs in Pennsylvania schools. Several teacher education institutions now provide programs, courses, and other academic experiences in the areas directly or indirectly related to environmental education. At the state and local levels in-service education efforts have been expanding but these efforts have been insufficient to meet the need for implementing environmental education as a viable component of school curricula. The vast majority of teachers and other school personnel have not been exposed to environmental education as an integral part of their pre-service education or through in-service programs. While pre-service and in-service efforts tend to strengthen the capability of teachers to utilize environmental education, they are too little and too few.

Eleven colleges in the Commonwealth are in the various stages of providing environmental education endorsement programs for pre-service and in-service teachers. Two have been given full approval by PDE; four have been given initial approval; three are scheduled for an evaluation team visit; and two others have submitted proposals to PDE. Other colleges have instituted courses or included an environmental education component in existing courses in an effort to provide an increased competence in this area.

We wish to draw attention to three vital needs which surfaced during our study which we feel require emphasis and special strategies of accomplishment.

First, environmental education is urgently needed by urban students and particularly as provided by inner city teachers. Guiding principles, curriculum materials, study sites, and teaching strategies are all needed for such new types of experiences. Students and teachers from non-urban areas also need insight into urban environmental problems. These matters must be recognized in implementing the recommendations listed in this section.

Second, the need for well prepared teachers in the next few years will be satisfied largely by in-service education programs and post-baccculaureate study leading to certificate endorsement. An intensified effort must be directed to fostering in-service programs at the local level and certificate endorsement programs in teacher education institutions. Instructors of these in-service programs and college credit courses must, through actual preparation, experience and accomplishment, be qualified to provide relevant environmental education activities for the teachers. Such activities should enable teachers to use natural and man-made environments located in or near inner city, urban, suburban, town, or village neighborhoods.

Third, there is a need for pre-service and in-service teacher preparation programs which are designed to stress the importance of an environmental perspective in all regular teaching activities.

The Pennsylvania Environmental Education Advisory Council strongly urges the immediate initiation of a dynamic high priority program to implement the following environmental teacher education recommendations.

<u>The Pennsylvania Department of Education should:</u>

#43 Immediately appoint a special task force of classroom teachers, teacher education and environmental education specialists to develop several schemes of environmental teacher education, both pre-service and in-service.

#44 Recognize interdisciplinary environmental education as a basic and urgent need in the preparation of future teachers and require the inclusion of such an environmental education component in all programs for teacher certification in the Commonwealth of Pennsylvania. Three additional levels of environmental teacher education should also be recognized as follows:

a. A regular teaching certificate 'Environmental Education Endorsement 'requires completion of an approved specialized environmental education program.

b. An 'Environmental Education Specialist' requires specialized preparation through: (1) a baccalaureate major; (2) post-baccalaureate study; or (3) graduate degree program leading to full certification.

c. An 'Environmental Education Supervisor' requires a cocentrated preparation at the graduate level.

#45 Require that the environmental education component for all teacher education students be provided through an interdisciplinary pattern involving integration of the environmental aspects existing within currently required courses in teacher education programs. The environmental education component should be designed to:

a. ensure understandings of environmental concepts and concerns;

b. create awareness of environmental education as a teaching medium;

c. ensure ability to utilize environmental education through exposure to activities and experiences designed to emphasize the value of environmental education to the total school curriculum.

The task force as stated in Recommendation #43 is charged to devise a plan to bring about the intent of this recommendation.

#46 Revise its program approval standards for environmental education certificate endorsements to parallel the following statements:

a. The program should ensure understandings of ecological concepts and concerns, the environmental problems facing humanity and the consequences of potential alternatives, and the interrelationships of the human and natural resource factors involved.

b. The program should ensure knowledge of: (1) the nature and extent of the natural resource base; (2) environmental analysis and monitoring techniques; (3) natural resources management; (4) the effect of social, political and economic systems on environmental matters; and (5) the history and research in environmental education.

c. The program should ensure abilities: (1) to communicate environmental concepts and concerns at all levels of social interaction; (2) to organize environmental learnings in a meaningful sequence for a K-12 program; (3) to plan and conduct field experiences; (4) to identify a wide variety of teaching strategies, resource persons, and curriculum materials appropriate to a diverse array of teaching situation; (5) to plan, develop and utilize environmental study areas; and (6) to select appropriate methods for program evaluation.

d. The program should include: (1) a wide array of learning experiences involving field trips, on-site programs, urban and rural resident experiences, case studies, environmental gaming, multi-media, and other appropriate experiences; and (2) the use of varied teaching strategies and instructional materials so that teachers with diverse individual teaching styles and varied teaching assignments will be adequately prepared.

e. The program should emphasize activities appropriate to the student's anticipated teaching level and/or subject area as well as a perspective of the K-12 environmental education effort.

f. The program should utilize a wide variety of natural and man-made environmental study areas.

g. The program should ensure a supervised practicum which provides opportunities for interaction with pupils in a wide variety of classroom and non-classroom teaching situations.

#47 Direct the special task force on environmental teacher education to recommend program approval standards for 'Environmental Education Specialists' and 'Environmental Education Supervisors.'

#48 Initiate at the earliest possible date through individual school districts, approved in-service councils, and appropriate higher education institutions a comprehensive interdisciplinary environmental education in-service program for both public and non-public school superintendents, administrators, supervisors, and teachers; and further that PDE make this in-service program a cooperative effort utilizing the physical and human resources of all appropriate government departments and agencies.

This comprehensive interdisciplinary environmental education in-service program should be based on a local needs assessment and should:

a. Utilize a wide variety of the human and physical resources of the community (community-based learning).

b. Provide for a wide array of learning experiences involving: field studies, on-site activities, urban and rural resident experiences, case studies, environmental gaming, multi-media, and other appropriate experiences.

c. Include a perspective of the K-12 interdisciplinary environmental education effort in addition to those activities appropriate for the teacher's grade level and/or subject area.

d. Provide firsthand experience in using varied teaching strategies and instructional materials that meet the diverse individual teaching styles and situations of the teachers.

e. Provide ample opportunity for teachers and administrators to be involved in the planning of the in-service programs.

f. Focus on awareness, valuing processes and contemporary environmental issues while building an understanding of the humanities and the natural, social, behavioral and political sciences.

#49 Develop a mechanism to recognize through in-service credit or other means, appropriate experiences obtained by teachers as a result of direct participation in environmental education activities during non-school periods.

#50 Appoint a special task force of teacher education, career education and environmental management specialists to write the standards for the preparation of teachers who will provide the vocational-technical instruction in environmental career programs.

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## PART VIII

## BUDGETARY RECOMMENDATIONS

#51 The Pennsylvania Department of Education, the Department of Environmental Resources, and other state agencies should review fund allocations for current environmental education programs in their departments, prepare a cost estimate for implementing the preceding recommendations, examine fund allocation priorities for other programs, and move environmental education to a high priority budget item.

#52 The Pennsylvania Department of Education, the Department of Environmental Resources, and other state agencies should expand their current efforts for locating and procuring all federal, state, and private funds that may be available for use in carrying out the environmental education programs outlined in the previous recommendations.

## APPENDIX A
## ENVIRONMENTAL EDUCATION DEFINITION

| DEFINITION (read down) | AMPLIFICATIONS |
|---|---|
| Environmental Education is a learning process | the process should be:<br>continuous (life long)<br>humanistic<br>inquiry oriented<br>interdisciplinary |
| concerned with the interrelationships within and between the various components | a change in any component affects the other components |
| of the natural | sun, air, water, land (mineral resources) plants and animals (including man) |
| and man-made world | the products of man's intellect:<br>governments, laws, economics, housing, services, industry, education, arts, recreation, transportation, mass communication and utilities |
| producing growth in the individual | the growth process will: (goals)<br>increase the commitment to active participation in society<br>clarify values<br>encourage harmonious life styles<br>increase knowledge<br>sharpen esthetic appreciation<br>increase understandings<br>develop learning skills<br>encourage creativity |
| and leading to responsible stewardship of the earth. | |

## APPENDIX B

## STATEWIDE SURVEY RESULTS

The purpose of this survey was to determine to what extent environmental education programs are a part of the total school program in the school districts of the Commonwealth. A cover letter and questionnaire was developed and sent to the 505 school districts in the Commonwealth. There were 238 questionnaires returned which represented a 47.1 per cent response. Of the returned questionnaires 75 (31.5 per cent) contained no information directly pertaining to the eight types of environmental education programs listed in Part III of this report. These returns in some cases were accompanied by a note or letter which: (1) indicated that environmental education programs were not a discernible part of the school program or (2) gave a narrative description which could not be tabulated.

Survey results indicate that 123 (51.6 per cent) of the school districts used environmental study areas (Type 6) as a part of their environmental education program. The eight types of environmental education programs have been ranked below according to the frequency of responses to the questionnaire.

Environment Study Areas (Type 6, page 7)

123 school districts 51.6%

Interdisciplinary Courses (Type 1, page 4)

85 school districts 35.7%

Environmental Community Action Emphasis (Type 4, page 6)

80 school districts 33.6%

Environmental Units or Mini-Courses (Type 3, page 5)

70 school districts 29.4%

Single Discipline Courses (Type 2, page 5)

51 school districts 21.4%

General K-12 Programs (Type 8, page 8)

46 school districts 19.3%

Special Environmental Emphasis (Type 7, page 8)

6 school districts 2.5%

Environmental Awareness Emphasis (Type 5, page 7)

1 school district
less than 1%

The superintendents were also requested to send a copy of curriculum materials used in their environmental education programs. Of the responding school districts 79 (33%) sent curriculum materials. The most commonly received type of curriculum material dealt with type 6: Environmental Study Areas. The eight types of environmental education programs have been ranked below according to the curriculum materials received from the 70 districts.

Environmental Study Areas (Type 6, page 7)

25 materials 31.6%

Environmental Community Action Emphasis (Type 4, page 6)

17 materials 21.5%

Single Discipline Courses (Type 2, page 5)

10 materials 12.6%

Environmental Awareness Emphasis (Type 5, page 7)

9 materials 11.3%

Special Environmental Emphasis (Type 7, page 8)

8 materials 10.1%

Environmental Units or Mini-Courses (Type 3, page 5)

5 materials 6.3%

Interdisciplinary Courses
(Type 1, page 4)

3 materials 3.8%

General K-12 Programs (Type 8, page

2 materials 2.5%

The following is a list of the 238 school districts who returned a questionnaire. The list is arranged according to Intermediate Units and is coded to show each school district's involvement in the eight types of environmental education programs. Where the information was dervied from the questionnaires, the environmental education program type number will be followed by the letter (s), signifying survey information; where the information was derived from an analysis of curriculum materials, the letter (m) signifying materials, will follow the type number. When both letters (sm) appear after the type number, the information was derived from both sources.

The eight environmental categories are:

Type 1. Interdisciplinary Courses

Type 2. Single Discipline Courses

Type 3. Environmental Units or Mini-Courses

Type 4. Environmental Community Action Emphasis

Type 5. Environmental Awareness Emphasis

Type 6. Environmental Study Areas

Type 7. Special Environmental Emphasis

Type 8. General K-12 Programs

IU 1 (Washington, Greene, Fayette)

| | |
|---|---|
| Burgettstown | - |
| California | - |
| Carmichaels | 3 s |
| Central Greene | 1 s; 2m; 3s; 4m; 6sm; 8 s |
| Charleroi | 8 s |
| Connellsville | 1 s; 3 s; 6 s |
| Fort Cherry | 1 s; 2 s; 3 s; 4 s; 6 s; 8 s |
| Ringgold | 3 s; 4 s; 6 s; 8 s |
| Trinity | 8 s |
| West Greene | 2 s; 3 s |

IU 3 Allegheny

| | |
|---|---|
| Avonworth | - |
| Bethel Park | 1 s; 2 s; 3 s; 4 s; 6 s; 8 s |
| Brentwood Borough | 1 s |
| Chartiers Valley | 1 s; 6 s |
| Clairton School | 1 s; 3 s; 6 s |
| Elizabeth Forward | 1 s; 2 s; 3 s; 6 s; 7 s |
| Fox Chapel | 1 sm; 3 s; 4 sm; 6 sm; 8 s |
| General Braddock | - |
| Highlands | 1 s; 6 s; 8 s |
| Moon Area | 1 s; 4 s; 6 sm |
| North Allegheny | 1 s; 2 s; 3 s; 5 m; 6 sm |
| North Hills | 1 s; 4 s; 6 s |
| Penn Hills | 2 s; 3 s; 4s; 6 s; 8 s |
| Plum Borough | - |
| Quaker Valley | 1 s; 2 s; 5 m; 6 s |
| Riverview | 4 s; 6 s |
| South Allegheny | - |
| Sto-Rox | - |
| Turtle Creek | - |
| Upper St. Clair | - |
| W. Jefferson Hills | 4 s; 6 s |

IU 4 Midwestern

| | |
|---|---|
| Butler | 6 s |
| Commodore Perry | - |
| Ellwood City | - |
| Farrell | - |
| Grove City | - |
| Laurel | 3 s; 6 s; 8 s |
| Mars | - |
| Moniteau | 1 s; 4 s; 6 s |
| Sharon City | - |
| Sharpsville | 2 s; 3 s; 6 s |
| Shenango | - |
| West Middlesex | 2 sm |

IU 5 Northwest Tri-County

| | |
|---|---|
| Conneaut | - |
| Corry | - |
| Erie City | 8 s |
| Fairview | 8 s |
| Girard | - |
| Harbor Creek | 1 s; 2 s; 3 s; 6 s |
| Northwestern | 3 s |
| Union City | 1 s; 4 s; 6 s; 8 s |
| Warren County | 2 s; 3 s; 6 s; 8 s |

| | | |
|---|---|---|
| IU 6 | Clarion Manor | |
| | Brockway | 4 s; 6 s |
| | Brookville | 2 s; 3 s; 4 s; 6 s; 8 s |
| | Clarion | - |
| | Cranberry | 1 s; 3 s; 4 m; 6 sm; 7 sm 8m |
| | Forest | - |
| | Franklin | - |
| | North Clarion | 1 s; 2 s; 6 s |
| | Punxsutawney | 1 s; 2 s; 3 s; 8 s |
| | Titusville | 1 s; 2 s; 6 sm; 8 s |
| IU 7 | Westmoreland | |
| | Burrell | 4 s; 6 s |
| | Derry | 1 s; 4 s; 6 sm |
| | Franklin Regional | 4 s; 6 s; 8 s |
| | Greater Latrobe | - |
| | Kiski | - |
| | Ligonier Valley | 4 s |
| | Mt. Pleasant | - |
| | Norwin | 2 s; 3 s; 4 s; 6 s |
| | Penn-Trafford | 1 s; 4 s; 6 s |
| | Southmoreland | 3 s |
| | Yough | 3 s |
| IU 8 | Appalachia | |
| | Berlin Brothersvalley | 1 s; 4 s; 6 s; 8 s |
| | Chestnut Ridge | - |
| | Northern Bedford | - |
| | Northern Cambria | - |
| | North Star | 3 s; 4 s; 6 s |
| | Rockwood | 3 s; 6 s |
| | Shanksville-Stonycreek | 1 s; |
| | Somerset | - |
| | Spring Cove | - |
| | Turkeyfoot Valley | 1 s; 2 s; 3 s; 6 s |
| | Tyrone | 1 s; 4 s; 6 s; 8 s |
| | Williamsburg Comm. | - |
| IU 9 | Seneca Highlands | |
| | Bradford | 1 s; 4 s; 6 s; 8 s |
| | Couldersport | - |
| | Johnsonburg | 1 s; 3 s |
| | Kane | - |
| | Northern Potter | - |
| | Otto-Eldred | 6 s; 7 s |
| | Port Allegany | 2 s; 3 s |
| | Ridgeway | - |
| IU 10 | Central | |
| | Bald Eagle | - |
| | Clearfield | 4 s; 6 s; 8 s |
| | Curwensville | 3 s; 6 s |
| | Glendale | - |
| | Harmony | - |
| | Philipsburg-Osceola | 4 m; 5 m; 6 m; 7 m |
| | State College | 1 sm; 2m; 3m; 4s; 5m; 6sm; 8 s |
| IU 11 | Tuscarora | |
| | Central Fulton | 1 s; 4 s; 6 s |
| | Forbes Road | 1 s |
| | Huntingdon | 2 s; 3 s; 6 s |
| | Southern Huntingdon | 6 s |
| IU 12 | Lincoln | |
| | Bermudian Springs | 6 s |
| | Chambersburg | 6 s; 7 sm; 8 s |
| | Dallastown | 1 s; 3 s; 4 s; 8 s |
| | Dover | - |
| | Eastern York | - |
| | Fannett-Metal | 2 s; 3 s |
| | Gettysburg | 1 s; 3 s; 6 s |
| | Greencastle-Antrim | 1 s; 4 s; 6 s; 8 s |
| | Hanover Public | - |
| | Southern York Co. | - |
| | West York | 6 s |
| | York City | 6 s |
| | York Suburban | - |
| IU 13 | Lancaster-Lebanon | |
| | Cocalico | 1 s; 2 s; 4 s; 6 s |
| | Donegal | 6 s; 8 s |
| | Eastern-Lebanon Co. | 1 s; 4 s; 6 s; 8 s |
| | Elizabethtown | - |
| | Lampeter-Strasburg | 3 s |
| | Lebanon | - |
| | Manheim Central | s m |
| | Manheim Twp. | 6 s |
| | Penn Manor | 2 s |
| | Pequea Valley | 1 s; 6 s |
| | Solance | 1 s; 2 s; 3 s; 6 sm. 8 s |

| IU 14 | Berks County | |
|---|---|---|
| | Boyertown | 4 s; 6 s |
| | Fleetwood | - |
| | Governor Mifflin | 1 s; 3 s; 4 s; 6 s |
| | Hamburg | 6 s |
| | Kutztown | 6 s |
| | Muhlenberg Twp. | - |
| | Oley Valley | 1 s; 2 sm; 3 s; 4 s; 6 sm; 8 s |
| | Reading | 1 s; 4 s; 6 s |
| | Schuylkill Valley | 1 s; 3 s; 4 s; 6 s |
| | Wilson | 6 s; 7 s |
| | Wyomissing | 3 s; 4 s; 6 s; 8 s |

| IU 15 | Capital Area | |
|---|---|---|
| | Carlisle | 1 s; 6 sm |
| | Central Dauphin | 2 s; 3 s |
| | Cumberland Valley | 5 m; 6 sm; 7 m |
| | Derry Twp. | 1s; 2 s |
| | East Pennsboro | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Greenwood | 1 s; 2 m |
| | Halifax | 4 s |
| | Harrisburg | 1 s; 4 s; 6 sm; 8 s |
| | Lower Dauphin | 1 s; 2 s; 3 s; 6 sm |
| | Middletown | 1 s; 4 s |
| | Northern York Co. | 1 s; 3 s |
| | South Middleton | - |
| | West Perry | - |
| | West Shore | - |

| IU 16 | Central Susquehanna | |
|---|---|---|
| | Berwick | 1 s; 2 s; 2 s; 4 s; 6s; 8 s |
| | Central Columbia | 1 s; 4 s; 6 s |
| | Lewisburg | 1 s; 4 sm. 5 m; 6 sm |
| | Mifflinburg | 7 s |
| | Shamokin | 1 s |
| | Shikellamy | 1 s; 2 s; 3 sm; 4s; 5 m; 6sm; 8 s |
| | Southern Columbia | - |

| IU 17 | Blast | |
|---|---|---|
| | Canton | - |
| | East Lycoming | - |
| | Northeast Bradford | 1s; 2 s; 3 s; 4 s; 6 s |
| | Northern Tioga | 1 s; 3 s; 4 s; 6 s |
| | Sayre | 4 s |
| | South Williamsport | - |
| | Towanda | - |
| | Wyalusing | - |

| IU 18 | Luzerne | |
|---|---|---|
| | Crestwood | 1 s; 2 s; 3 s; 6 s |
| | Hanover | - |
| | Lake-Lehman | 6 s |
| | Pittsbon | 2 s; 3 s; 4 s; 6 s |
| | Tunkhannock | 6 s |
| | Wyoming | 1 s; 2 sm; 3 s; 4 sm; 6 sm |

| IU 19 | Northeastern Educational | |
|---|---|---|
| | Abington Heights | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Forest City Regional | - |
| | Lackawanna Trail | - |
| | Montrose | 1 s; 3 s; 6 s |
| | Mountain View | - |
| | Riverside | 2 s |
| | Scranton City | 3 s; 4 s; 6 s |
| | Valley View | 1 s; 6 s |
| | Wallenpaupack | 1 s; 6 s; 8 s |
| | Wayne Highlands | 3 s; 4 s; 6 s; 8 s |
| | Western Wayne | 1 s; 4 s; 6 s |

| IU 20 | Colonial Northampton | |
|---|---|---|
| | Bangor | 2 s; 4 s; 6 s; 8 s |
| | Easton Area | 1 s; 4 s; 6 s |
| | Nazareth | 1 s; 4 s; 6 s |
| | Saucon Valley | 1 s; 3 m; 4 m; 6 sm; 7m; 8 s |
| | Wilson | 1 s; 2 sm; 3s; 4 s; 6 s; 8 sm |

| IU 21 | Carbon-Lehigh | |
|---|---|---|
| | Allentown | 4 s; 6 s |
| | Catasauqua | 1 s; 6 s |
| | East Penn | 1 s; 2 s; 3 s; 4 sm; 6 sm; 7 m |
| | Weatherly | - |

| IU 22 | Bucks County | |
|---|---|---|
| | Bensalem Twp. | - |
| | Centennial | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Central Bucks | 4m |
| | Council Rock | - |
| | New Hope-Solebury | 3 s; 4 s |

| IU 23 | Montgomery County | |
|---|---|---|
| | Abington | 2 m; 3 m; 6 m |
| | Cheltenham Twp. | 1 s; 3 s; 4 sm; 6 s |
| | Colonial | - |
| | Lower Moreland Twp. | 1 s; 2m; 4sm; 5m; 6sm 7m |
| | Methacton | 3 s; 6 s |
| | North Penn | - |
| | Perkiomen Valley | 4 m |
| | Souderton | 4 s; 6 s |
| | Springfield Twp. | 4 s; 6 s; 8 s |
| | Upper Dublin | 1 s; 4 m; 6 s |
| | Wissahickon | 2 s; 3 s; 6 s |

| IU 24 | Chester County | |
|---|---|---|
| | Avon Grove | 1 s; 4 sm; 6 s |
| | Dowingtown | 4 m |
| | Kennett Consolidated | 2 s; 3 s; 4 s; 6 s; 8 s |
| | Octorara | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Owen J. Roberts | 1 s; 4 s; 6 s; 8 s |
| | Oxford | 1 s; 4 sm; 6 s; 8 s |
| | Tredyffrin-Easttown | 2 s; 3 s; 4 s; 6 s |
| | Unionville-Chadds Ford | 1 sm; 2s; 2 s; 4 sm; 6 sm; 8 s |
| | Westchester | 2 m; 6 sm |

| IU 25 | Delaware County | |
|---|---|---|
| | Chichester | 1 s; 6 s |
| | Garnet Valley | - |
| | Ridley | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Springfield | - |
| | Wallingford Swarthmore | - |

| IU 27 | Beaver Valley | |
|---|---|---|
| | Ambridge | 4 s; 5 s |
| | Hopewell | 4 s |
| | Monaca | 2 s; 5 m; 6 sm |
| | New Brighton | 1 s; 2 s; 3 s; 4 s; 6 s; 8 s |
| | Northeastern Beaver Co. | 2 s; 3 s; 4 s |
| | South Side | - |

| IU 28 | Arin | |
|---|---|---|
| | Armstrong | - |
| | Indiana | 1 s; 8 s |

| IU 29 | Schuylkill | |
|---|---|---|
| | Blue Mountain | 7 s |
| | North Schuylkill | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Pine Grove | - |
| | Tamaqua | 1 s; 2 s; 3 s; 4 s; 6 s |
| | Tri-Valley | - |
| | Williams Valley | 4 s; 6 s |